

# SCDXC Newsletter



The Southern California DX Club is a group of dedicated men and women active in the amateur radio community who enjoy communicating over the air with other radio amateurs around the world.

The SCDXC strongly supports the DX Code of Conduct. Please visit their website:

[www.dx-code.org](http://www.dx-code.org)

The SCDXC newsletter is published monthly and released to club members around the first of each month. Amateur and DX related letters, news and pictures are welcome and will be published as time and space permit.

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Any questions regarding this newsletter or its articles should be addressed to the Editor, Bill, N6RV at:

[n6rv@scdxc.org](mailto:n6rv@scdxc.org)

Club meetings are held on the second Thursday of the month at 7:30 PM except April, June and December.

Please check the club web site for events and details at:

<http://www.scdxc.org>

If you are in the area please say hello on our repeater:

W6AM/R 145.48, (-) PL 100.0

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*If you need him get in there and work him*



## ANNOUNCEMENTS

### Dennis Sullivan, NS6C Completes 5BWAZ!!!

Dennis, NS6C, finished his 5BWAZ this month and has received the certificate. S21ZEE, Bangladesh, was the last one he needed (80M Zone 22). Dennis' count is now 345/200 (10B / 5B). Congratulations



### 2018 IDXC Visalia Meeting

The International DX Convention will be having its first kick off meeting on August 12, 2017 @ 10:00 AM at the QTH of George & Kris Jacob's home. This meeting is for those who seriously wish to see the Southern California DX Club and IDXC 2018 have a successful convention. We still have some very important positions open for those who know how to do it. Fresh ideas are encouraged. Here are the positions that need to be filled with us to be successful:

- Registration
- Treasurer
- Programs
- Audio Visual coordinator
- Meals Coordinator
- Raffle Ticket Coordinator
- Special Event Coordinator
- DX Liaison
- Media Coordinator

Please join us if you are serious about taking on one of these positions. Regular volunteers are welcome to come but we really need these positions filled and start making our decisions on moving forward with the convention. If you are seriously interested, please contact us at:

[idxc2018co-chair@dxconvention.org](mailto:idxc2018co-chair@dxconvention.org)

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# From the Desk of the President

## Doug Dowds, W6HB

***QST de W6HB:***

Thanks to all who assisted with and attended the club's annual picnic at Woodley Park last month. The food was good as was the camaraderie. Congratulations to the prize winners and an additional "atta-boy" to Mel and Doris for adding to the pool. Some folks headed home with some classic wines!

Make sure you have marked your calendars for August 6th for the Summer Bash sponsored this year by the SDDXC. The location is at Glenn Rattman - K6NA's and the address is 14250 Calle De Vista, Valley Center, CA 92082. The time is from 1200 to 1600 PDST.

July's meeting will share the club's history and I will leave the details to Mel's column.

The bands have had a few interesting quirks the past month. Short openings to Europe and Africa in the middle of the day have popped up. Openings to the South Pacific and Europe have been seen fairly often from around 0300 UTC until some nights as late as 0700 UTC. Guess this is a good reason to nap during afternoons a few days a week.

Expect a pitch from Kris, KC6TOD, and Cathy, K6VC, as they work toward the IDXC 2018. Worker bees are needed and new blood is even more important. Can you provide a transfusion?

Just an ongoing reminder -- this is your club so let us know if there is something you would like the board to address or anything you would like to see the club do. Things can't always automatically happen if we don't know the desires of the membership.

**73 - Doug - W6HB**

## July Calendar

July 1	DL DX Contest, RTTY
<b>July 13</b>	<b>SCDXC General Meeting</b>
July 15	NAQP, RTTY

 **Notes from the VP** 

Paraphrasing a line from Charles Dickens' A Tail of Two Cities "It was the best of times, it was the worst of times...". that describes what the last seven months have been for the Hughes clan.

When our daughter Denise and her husband Brian were visiting us from their home in San Diego last Christmas Brian was complaining about a scratch on his shin that wasn't healing. When they returned home Brian went to the local Kaiser Hospital Wellness Center to have it looked at. They treated it and sent him home only to call him back the next morning telling him they had just received the results of the blood tests from the day before and he needed to immediately return to hospital. There he was told that he had AML or acute myeloid leukemia and without treatment he had perhaps two months to live.

What followed were several rounds of chemotherapy, that while reducing the leukemic blood from 75% to about 3% left him comatose and on life support for nearly weeks.

While all this was going friends and family members were volunteering to be tested as possible bone marrow stem cell donors. Luckily, his brother was the best possible sibling match with all the right cell markers. When Brian was finally strong enough to continue with the treatment he was transferred to the City of Hope in Duarte California for a final round of Chemo and a stem cell transplant procedure.

Three weeks after receiving the transplant Brian was released from City of Hope Research Hospital and been staying with us as we are the only family members without small children, pets, and live within an hour's drive of the City of Hope as he has to return to COH twice a week for follow up tests.

Last Thursday, five weeks after the transplant, the stem cell biopsy showed that the procedure had been successful and Brian was cancer free. He still has no immune system, and will be staying with us until the end of August. If everything goes according to plan, in September Brian will be able to return home to San Diego with the follow up visit at Kaiser. At the end of a year assuming no return of leukemic cells and no transplant rejection he will receive a round of childhood immunizations and should be able to begin returning to a more normal life.

In the mean time we get to see our daughter each weekend as she drives up from San Diego to visit Brian. It is a pleasure to see what a mature, strong, well organized, responsible adult she has become. The hours required to be caregivers has taken a toll on my HAM radio operating time but it has brought all of our extended family much closer together. With Brian's continued improvement we are looking toward a bit more HAM radio time next year.

The July SCDXC program will feature a look back into the archives of the DX Club, while the August meeting will feature Carl, WU6D and his new 160 meter rotatable receiving antennas. The September meeting will feature Bill Shell, N6WS, sharing his recent trip to the ham show in Friedrichshafen, Germany this July. The annual SCDXC boat anchor ham equipment only auction will take place in October.

Don't forget, the ARRL SW Division Convention is this September at the Torrance Marriott Hotel and that the SCDXC is part of the event.

## Rumors on the Band

June was a big step down from prior months. It seems most DX went on vacation... without their radios. Were it not for 6m sporadic E many DXers would be looking for another hobby. Speaking of 6 meters look at all the announced DX operations targeting 6 meters!! Furthermore look at all the Digital activity. Maybe there is a paradigm shift going on right under our feet!

QTH	Call	Start Date	End Date	Information
Christmas Isl.	VK9AA	24-Jun	1-Jul	HL1AHS 80-6m CW SSB RTTY PSK31
Svalbard	JW7QIA	24-Jun	1-Jul	LA7QIA 6m SSB CW
Maldives	8Q7RN	26-Jun	6-Jul	G4IRN HF CW
Haiti	4V1G	27-Jun	8-Jul	W3CMP N3BNA 6m
Market Reef	OJ0V	1-Jul	7-Jul	ON5TQ ON6QO ON2KMJ ON8VP 80-10m CW SSB
Crete	SX9VK	1-Jul	9-Jul	K2IR SV1JG SV1GE SV1ME SV1AJO 80- 6m CW SSB RTTY
St Pierre	FP/KV1J	1-Jul	9-Jul	KV1J 160-6 SSB CW RTTY Digital
Vanuatu	YJ0GA	7-Jul	13-Jul	ZL3GA 20 - 30m CW
Georgia	4L/DL7ZM	13-Jul	20-Jul	DL7ZM 6m
Maldives	8Q7PW	18-Jul	1-Aug	G4PWO 40 20 17 15 SSB Digital
Marquesas	TX5EG	29-Jul	6-Aug	F6BCW F6DTZ F1TCV K3EL 80-12m CW SSB



Have you ever wondered what a Luso tower looks like fully extended and fully loaded? Well here is one picture that tells the story.

This is the LUSO 170MG. The dull height is 168 feet plus a 25 ft mast out of the top makes it 194 ft. That might not be high enough.

Note that there are four antennas on the tower. The top one looks like a full size 4 element 40 meter beam.

The tower rotates from the base which has 75 yards of cement under it!. The bottom section is 7' 7" wide. It can handle 17 m<sup>2</sup> area (183 sq. ft.) in a 57 mph sustained wind which translates into 60 sq. ft. in a 100 mph wind. Even so notice how there is nothing within the falling radius of the tower... good idea.

I think 4 of these would make a good multi-op station. Of course you would need about \$125 K each to throw into this project but it would be the last time you had to put up a tower... until something bigger comes along!

# DX Standings

One significant submission came in last month. Dennis, NS6C, completed his 5BWAZ! Way to go Dennis! The rest of us languish in ambivalence waiting for one more crack at glory. As the song goes... *Turn your radio on!*

Red represents members who have all current entities (#1 Honor Roll)

Blue Represents members who have 330 entities or above (Honor Roll).

Black is everyone else.

[N6RV@SCDXC.org](mailto:N6RV@SCDXC.org)

## SCDXC WAZ and DXCC Standings

The first WAZ column is the confirmed zone count on 10 bands 160 - 6 (less 60 meters). The second column is the regular 5BWAZ confirmed count. The following are the codes that follow the two columns and indicate the awards:

M	Mixed
P	Phone
C	CW
R	RTTY
5	5 Band

The first DXCC column is the confirmed entity count with deleted countries. The second column is the confirmed current entity count. The third column is the challenge slots.

The members highlighted in **Red** are at the top of the Honor Roll. Those in **Blue** are on the Honor Roll

SCDXC Southern California Members Standings 2017									
Rank	Call	Total	Current	Slots	Rank	Call	Total	Current	Slots
1	W6KH	388	339		50	AC6DX	319	317	1861
2	K6YRA	377	339	2272	51	AK6I	316		
3	K6EXO	370	332		52	N6YQ	315		
4	N6UC	366	339		53	KC6T	314		
5	K6YUI	365	339	2590	54	N6GP	314	286	1583
6	W6BCQ	365	339	1522	55	N6VNI	309	306	1452
7	NS6C	360	339	2456	56	W6HB	306	307	1445
8	K6SMF	360	337		57	NK6A	303	297	957
9	W6HT	358	339		58	K6IRD	294	292	649
10	W6SR	358	339	2799	59	N6UOZ	280		
11	WA6WZO	357	339		60	KT6LA	278	276	1027
12	K6FG	356	339	2744	61	WA6WXD	274		
13	K8RD	356	339		62	K6VC	259		
14	K6GXO	355	339	2624	63	N6VOH	243		
15	N6RV	355	338	1973	64	W6DOE	242		
16	W6IRD	354	337		65	K6SS	241	255	882
17	K5KT	353	339		66	W6LEN	236	216	771
18	N6QQ	353	337	2164	67	KN6VF	233		
19	W6TJI	353	335		68	N6HE	228		
20	N7NR	352		1123	69	KQ6K	224		
21	W8DX	352	339	2517	70	N6AA	222		
22	W6OU	352	333	1570	71	K6JEY	220		
23	W6TK	350	339	1781	72	K6AWB	219		
24	W6YOO	349	338	2129	73	W6WVW	210		
25	N6AWD	349	337	1466	74	W6JEA	195		
26	N6HC	348	339	2254	75	W6KC	195	194	528
27	W6KK	348	339	1747	76	K6DDJ	188	185	452
28	WA5VGI	348	339	2687	77	K6QU	172	172	
29	W6VX	348	338	2742	78	KF6I	143		
30	N6HY	345	336	2424	79	NC6B	170	170	479
31	N6WS	348	336	1862	80	KB6CIO	167		
32	A16Z	348	335	2145	81	K7LA	160	160	355
33	N6IC	347	336		82	W6QE	149	149	224
34	KR6C	344	338	1956	83	AB9A	141		
35	K6LPO	344	221	1236	84	KK6FJQ	139	139	142
36	N6PE	343	331	1251	85	N6CA	133	133	
37	N6PEQ	341	334	1793	86	K6MKL	126	126	185
38	KM6HB	341	334	1852	87	K6DSW	122	122	268
39	W6ZPL	338	335	1367	88	KC6TOD	120		
40	N6XT	337	330		89	AD6LV	118		
41	K6RO	336	331	1531	90	N6RU	118	118	218
42	W6SW	336	318	501	91	N6DBF	117	117	301
43	W6FL	335			92	N6PM	114	113	243
44	K21XQ	335	331	1694	93	KA6D	107		
45	N6MXU	332	329	1216	94	N6LL	105		
46	K6SY	332	322	1037	95	W6DAW	105		
47	K0OK	329	327	1728	96	K6BBC	103		
48	AB6CF	328		1404	97	N6HD	101		
49	N6AX	325			98	NQ6L	101		
50	K6JW	325	319	1057	99	WA6MEM	100		
51	AA6PW	320		1559	100	NE6V	87	87	150
52	N6NPG	319			101	KK6ABZ	13	13	23

SCDXC Member at Large Standings 2017									
Rank	Call	Total	Current	Slots	Rank	Call	Total	Current	Slots
1	K6KII	387	339		9	K6ND	347	339	2491
2	JA1BK	382	339	3094	10	SM5GMZ	343	333	2180
3	OH2BH	377	339		11	K7ACZ	341	324	1746
4	ON4UN	371	339	1969	12	W6DR	323	318	1365
5	DJ9ZB	365	339	2653	13	N6DHZ	295	289	1053
6	K6IPV	362	334	1711	14	W3SE/ZL3TE	293	291	1382
7	N4XX	358	339	1598	15	K7MY	267	265	831
8	KC6X	349	335	1987					

WAZ Standings		
Call	10B / 5B	Awards
K6ND	378 / 200	M/5
W6SR	369 / 200	M/P/C/5
K6FG	365 / 198	M/P/C/R/5
WA5VGI	358 / 200	M/P/C/5
W8DX	357 / 200	M/5
EU7SA	357 / 200	M/5
N6AW	355 / 200	M/P/C/5
NS6C	345 / 200	
K6YRA	337 / 200	P/5
K6YUI	337 / 200	M/P/C/R/5
WD6L	248 / 200	M/P/5
N6OU	220 / 200	M/5
K6UNR	/ 200	M/P/5
W6VX	352 / 199	
K6GXO	358 / 198	M
SM5GMZ	345 / 196	M/P/C
W6ENZ	306 / 196	
N6MXU	155 / 193	
K2PLF	191 / 191	
N6RV	302 / 187	M/P/C
KC6X	294 / 187	M/P/C/5
N6QQ	325 / 186	M/P/C/R
K6LD	314 / 186	M/P/C
W6YOO	308 / 185	M/P/C/5
KH6DX/m	210 / 184	
KH6MB	304 / 179	5
K0OK	286 / 173	
K6SY	246 / 173	P
W6ZPL	237 / 173	M/P
KJ6Y	261 / 172	
KR6C	295 / 171	M/C
AD6KQ	226 / 164	
N6DHZ	214 / 160	P
K6KII	191 / 177	M
W6DR	227 / 159	
NK6A	152 / 152	M/5
W6NRQ	180 / 147	M/P
WA6BOB	152 / 136	M
W6IRD	151 / 111	M/P
W5DQ	161 / 122	
K6IRD	154 / 126	M/P
WB6PSY	139 / 140	P
KT6LA	132 / 103	
N6HE	130 / 138	
W3SE	102 / 112	
K6IRA	118 / 102	
K6VC	96 / 96	P
W6EA	92 / 86	
N6UC	78 / 78	M
KA6TTV	82 / 67	
N6VNI	86 / 64	
N6RRY	74 / 64	
N6GIL	49 / 43	
W6DCK	40 / 40	P
K6JW	40 / 40	M/P
K6YR	39 / 39	
W6DOE	37 / 37	
NZ6L	36 / 36	
W4EF	29 /	
N6AWD		M
N6HC		M/P/C
KB6KTV		P
W6OES		M
K8RD		C

# 2017 Get Schroeder Contest

2017 Get Schroeder Leaders						
2017 Entities Worked by SCDXC						257
2017 ClubLog Leaders						271
2016 SCDXC Members						282
2016 SCDXC Leaders (N6QQ / N6WS)						265
2016 ClubLog Leaders						289
Rank	Call	Entities	Delta	Missed	-QQ	Uniques
1	N6RV	240	4	17	-13	1
2	NC6B	232	4	25	-5	0
3	N6WS	230	6	27	-3	1
4	N6QQ	227	7	30	0	0
5	W6TK	227	5	30	0	1
6	NS6C	188	5	69	39	1
7	AI6Z	178	10	79	49	0
8	K7ACZ	159	15	98	68	0
9	WA5VGI	148	7	109	79	0
10	W6OU	148	23	109	79	0
11	N6HY	134	79	123	93	0
12	KK6FJQ	128	3	129	99	1
13	NE6V	124	0	133	103	0
14	W6SR	116	0	141	111	0

1A0	4S	7Q	A3	CE9	E7	FK	GI	HS	KH0	LY	PJ5	SV9	TU	VK9C	VU	YV
1S	4U1TU	7X	A4	CN	EA	FK/C	GJ	HV	KH1	LZ	PJ7	T2	TY	VK9L	VU4	YV0
3A	4U1UN	8P	A5	CO	EA6	FM	GM	HZ	KH2	OA	PY	T30	TZ	VK9M	VU7	Z2
3B7	4W	8Q	A6	CP	EA8	FO	GU	I	KH3	OD	PY0F	T31	UA	VK9N	XE	Z3
3B8	4X	8R	A7	CT	EA9	FO/A	GW	IS0	KH4	OE	PY0S	T32	UA0	VK9W	XF4	Z8
3B9	5A	9A	A9	CT3	EI	FO/C	H4	J2	KH5	OH	PY0T	T33	UA2	VK9X	XT	ZA
3C	5B	9G	AP	CU	EK	FO/M	H40	J3	OH0	PZ	T5	UJ	VP2E	XU	ZB2	
3C0	5H	9H	BS7H	CX	EL	FP	HA	J5	KH6	OJ0	R1F	T7	UN	VP2M	XW	ZC4
3D2	5N	9J	BU	CY0	EP	FR	HB	J6	KH7K	OK	S0	T8	UR	VP2V	XX9	ZD7
3D2/C	5R	9K	BV9P	CY9	ER	FR/G	HB0	J7	KH8	OM	S2	TA	V2	VP5	XZ	ZD8
3D2/R	5T	9L	BY	D2	ES	FR/T	HC8	JA	KH8S	ON	S5	TF	V3	VP6	YA	ZD9
3DA	5U	9M2	C2	D4	ET	FR/T	HC8	S9	KH9	OX	S7	TG	V4	VP6/D	YB	ZF
3V	5V7	9M6	C3	D6	EU	FS	HH	JD1/M	KL7	OY	SM	T19	V6	VP8/G	YJ	ZL
3W	5W	9N	C5	DL	EX	FT5W	HI	JD1/O	KP1	OZ	SM	T19	V6	VP8/H	YK	ZL7
3XA	5X	9Q	C6	DU	EX	FT5X	HK	JT	KP2	P2	SP	TJ	V7	VP8/O	YL	ZL8
3Y/B	5Z	9U	C9	E3	EZ	FT5Z	HK0/M	JW	KP4	P4	ST	TK	V8	VP8/H	YK	ZL9
3Y/P	6W	9V	CE	E4	F	FW	HK0/S	JX	KP5	P5	SU	TL	VE	VP8/S	YN	ZP
4J	6Y	9X	CEOX	E5/N	FG	FY	HL	JY	LA	PA	SV	TN	VK	VP9	YO	ZP
4L	7O	9Y	CEOY	E5/S	FH	G	HP	K	LU	PJ2	SV/A	TR	VK0H	VQ9	YS	ZS
40	7P	A2	CEOZ	E6	FJ	GD	HR	KG4	LX	PJ4	SV5	TT	VK0M	VR	YT	ZS8

Well things certainly started out well but came to a screeching halt! Hopefully the next two months will yield something. The leaders are scratching for just one or two new ones. Many SCDX members will be on vacation for a month so now is the time for the second pack to overtake the first!

SCDXC Get Schroeder Standings 2017																
Rank	Call	160	80	60	40	30	20	17	15	12	10	6	Total	Slots	Yrs	
1	N6RV	0	0	0	169	98	199	97	98	13	30	12	240	716	49	
2	NC6B	25	57	0	153	71	181	103	79	17	17	6	232	709	3	
3	N6WS	10	58	4	152	89	188	145	99	12	37	6	230	800	53	
4	N6QQ	0	5	0	157	95	202	118	107	20	37	5	227	746	60	
5	W6TK	13	47	0	155	70	191	118	100	10	27	2	227	733	60	
6	NS6C	18	36	0	79	32	95	35	18	5	4	0	188	322	60	
7	AI6Z	1	31	0	98	13	138	17	57	4	15	0	178	374	24	
8	K7ACZ	10	41	0	92	16	127	36	69	4	13	0	159	408	14	
9	WA5VGI	22	13	0	45	22	115	2	47	0	4	0	148	270	33	
10	W6OU	4	28	0	51	32	87	30	11	9	3	6	148	261	54	
11	N6HY	11	31	0	86	39	68	38	19	0	2	4	134	298	64	
12	KK6FJQ	0	0	0	35	10	92	24	23	1	1	1	128	187	4	
13	NE6V	31	50	0	61	0	33	40	29	9	11	0	124	264	21	
14	W6SR	19	32	0	51	3	97	2	72	0	21	7	116	304	50	
15	N6PM	0	1	0	47	22	71	33	37	0	12	3	97	226	23	
16	K6FG	4	28	0	54	9	47	30	34	2	2	9	96	219	61	
17	SM5GMZ	10	18	0	24	26	33	43	12	1	1	0	93	168	48	
18	NK6A	0	0	0	25	0	70	3	52	0	16	0	86	166	72	
19	N6VNI	0	21	0	42	3	35	15	12	0	0	0	85	128	28	
20	K6QU	0	24	0	53	20	29	15	7	2	4	0	82	154	3	
21	AC6DX	0	33	0	61	0	43	2	40	0	22	2	81	203	10	
22	KR6C	0	3	0	32	15	34	15	6	2	0	0	77	107	39	
23	W6QE	0	0	0	4	0	61	4	28	1	2	0	73	100	23	
24	N6GP	0	8	0	15	0	53	0	44	0	16	4	72	140	28	
25	N6DBF	0	2	6	41	6	36	27	22	1	4	4	70	149	31	
26	ZL3TE	0	8	0	53	5	13	6	38	0	5	0	67	128	13	
27	WZ6D	0	1	0	28	10	37	4	23	2	0	0	66	105	1	
28	W6KC	0	24	0	47	0	38	0	43	1	15	0	63	168	20	
29	KM6HB	5	10	0	35	16	25	14	16	3	3	3	63	130	26	
30	K6PGH	0	0	0	1	0	46	15	28	1	7	0	59	98	4	
31	N6HE	3	3	0	9	13	40	13	22	2	4	0	55	109	39	
32	K6DDJ	0	1	0	13	7	18	13	13	0	1	0	46	66	22	
33	N6AX	0	5	0	14	9	6	7	2	0	0	0	28	43	48	
34	N6RU	0	0	0	0	0	26	5	1	0	1	0	27	33	9	
35	WB6DJI	0	0	0	2	0	8	8	1	0	0	0	13	19	4	
36	K7MY	0	1	0	1	0	5	0	9	0	1	0	10	17	40	
37	W6SW	0	0	0	0	0	7	4	0	0	0	0	9	11	38	
38	K6YUI	0	0	0	0	1	1	2	0	0	0	0	4	4	60	
39	KT6LA	0	0	0	0	0	1	0	0	0	0	0	1	1	11	

### Chart Legend

White / Green	Entity Worked This Year by a Member
Black / White	Very Active Entity Not Yet Worked
Black / Blue	Entity with Announced Dxpedition
Black / Yellow	Rarely Active Entity Not Yet Worked
Black / Red	Inactive Entity
	Deleted Entity

Get Schroeder Award Standings are calculated by entries in Club Log.

To learn how to use club log and enter your countries see  
<http://www.scdxc.org/dx-standings.html>

Entities added to SCDXC totals this month

5X 9U ST TT VK9X ZC4  
 7Q ET SU VK9C XU ZS8  
 J2 KH9 SV/A VK9N YA

Entities worked on ClubLog not yet worked by SCDXC

## JT65 Versus CW

Recently the new digital modes have really taken off. On any day you can tune across the CW sub-band and find maybe less than a dozen CW stations. Likewise you can tune to the digital sub-band and possibly find a few RTTY stations. However on both the PSK sub-band and JT65 sub-band there are dozens of stations active! Many days there is no activity on a band except JT65 and PSK.

Like it or not JT65 has become the new narrowband DX mode. It enables the no code hams with small stations to handily work rare DX. On the flip side it enables hams in the third world with little resources to work DX. A dipole and 5 watts in Pakistan could be enough to generate a pile up. For old Dxers and new alike it is exciting to see a rare station pop up on the screen and, though not as skillful an art form as CW, there is some skill in the form of timing and split operation involved in getting into the DX stations log book.

Joe Taylor, K1JT, the developer initially designed the protocol to pass basic contact information over the Earth - Moon - Earth (EME) path. Because of the nature of EME the QSO is usually a very brief exchange similar to those made on CW with a DXpedition or during a contest. The way JT65 and CW differ in this matter is that with CW you could break into a full QSO where JT65 is constrained to only a DXpedition type exchange or what you could fit in 13 characters and it takes about 5 minutes to finish a QSO!

That said JT65 is far superior to CW. Why? First, it is very slow. The slower you send the more power per symbol. The more power per symbol the narrower the bandwidth, the lower the noise hence the higher the detected Signal to Noise Ratio (SNR). Deep Space missions have used this fact very effectively.

Second, the coding is very strong. JT65 uses a rate .19 Reed - Solomon block code (RS(63,12)). A fixed number of bits (a block of data) from the input message is processed and a parity tail is attached. What does this mean? The message data is about 20% of the encoded message which is transmitted, and the other 80% is a calculation based on the input message data that is used to identify any errors in the received data and correct it.

Third is interleaving. The encoded data is fed into a matrix by rows and read out by columns. This effectively spreads the encoded data out over several tones in such a way that any reasonably short fade or noise burst does not destroy the data to the point it is decoded incorrectly. The cost of a tone burst error is spread over several coding blocks which the decoder can easily correct versus corrupting several bits in one encoded block.

Finally, redundancy, repeating the message, essentially gives the decoder more than one chance to get it right. Though redundancy is not an efficient way of encoding a signal in a well behaved channel it does aid significantly in the presence of interference. Think about the effect of sending your call several times in a pile up. Maybe one out five times you are in the clear and the station hears you.

There also are other artifacts that aid in decoding the message. For example there is a sequence built into the signal that is used to keep the decoder in sync, keeping the timing aligned. Finally, with all these factors, particularly, coding, most of the time the 13 character message comes out error free. The rest of the time either the message is not decoded or it is gibberish.

All this is classic modern digital communication and does bring the hobby into the 21st century.

Can these benefits be quantified? In fact, yes it can. Here is a back of the envelope calculation that attempts to approximate the improvement gained by JT65.

First let's make some assumptions:

- 1.) We are operating near CW threshold (~3dB SNR).
- 2.) We are using the narrowest bandwidth possible on CW (50 - 100 Hz).
- 3.) The minimum JT65 received SNR is -28 dB (SNR in a 2500 Hz bandwidth).

Here is the calculation:

<b>CW Detection Bandwidth</b>	<b>100 Hz</b>	<b>50 Hz</b>	<i>Minimum CW occupied BW (Speed dependent)</i>
<b>JT65 Reported SNR Bandwidth</b>	<b>2500 Hz</b>	<b>2500 Hz</b>	
<b>Bandwidth Adjustment (BWI)</b>	<b>14.0 dB</b>	<b>17.0 dB</b>	$BWI = 10 \log((BW_{JT65})/(BW_{CW}))$
<b>JT65 SNR<sub>T</sub></b>	<b>-28 dB</b>	<b>-28 dB</b>	<i>Minimum JT65 SNR seen reported to date.</i>
<b>CW SNR<sub>T</sub></b>	<b>3 dB</b>	<b>3 dB</b>	<i>Estimated CW detection threshold</i>
<b>SNR<sub>T</sub> Improvement (SNRI)</b>	<b>31 dB</b>	<b>31 dB</b>	$SNRI = CW_{SNR_T} - JT65_{SNR_T}$
<b>Actual JT65 Improvement</b>	<b>17.0 dB</b>	<b>14.0 dB</b>	$= SNRI - BWI$
<b>CW Readable when JT65 Reported SNR is above</b>	<b>-11.0 dB</b>	<b>-14.0 dB</b>	$= CW_{SNR_T} - JT65_{SNR_T}$

The bandwidth improvement is the ratio of the bandwidths in dB (e.g.  $10 \log(2500/100)$  in the 100 Hz case). This accounts for the difference between the measure SNR reported in JT65 and the bandwidth assumed for CW. The SNR reported by JT65 is in a 2500 Hz bandwidth. That is the typical SSB transceiver bandwidth. The detected bandwidth for CW varies from radio to radio however if the bandwidth is not set too wide many good operators effectively filter the signal down further .. in their brain. Consider it the most powerful post processor on the planet. This has been demonstrated many times at multi-operator contest stations. Some ops run their bandwidth at 2.1 KHz and easily pull out the weak ones! Typically 100 Hz to 500 Hz is where most ops normally like it.

Using the full JT65 sub-band bandwidth actually makes the mode seem even more robust, though it still is very robust without the added bandwidth. The tone rate the tone detection bandwidth is super narrow. This is related to the very slow symbol rate and is one of the factors that makes JT65 superior to CW.

The SNR<sub>T</sub> improvement is solely the difference between the threshold SNRs (3 dB - (-28 dB)). One might argue that 3 dB CW SNR is not armchair copy. Remember that we are looking at threshold conditions, the lowest SNR required to copy a call and a report, for each mode. Most weak signal 6 meter operators can copy signals with a 1 dB SNR. It is not easy. It is a challenge that takes patience and skill.

The actual improvement, 14 dB in 50 Hz and 17 dB in 100 Hz, is the difference of the SNR<sub>T</sub> improvement and the bandwidth improvement (e.g. 31 dB - 14 dB = 17 dB for 50 Hz case). **If JT65 reports the signal strength at -14 dB SNR (in 2500 Hz) the same station should be copyable on CW in a 50 Hz bandwidth with a 3 dB SNR.** Again this calculation is a SWAG but it is close.

This calculation can be extended to the advantage of JT65 over SSB. If we assume a SSB signal occupies 2500 Hz and an acceptable threshold SNR is 6 dB (*Most communication courses state 12 - 16 dB SNR as acceptable. Below that the detected SNR degrades unless a synchronous detector is used.*) the calculation can be modified by adding 3 dB to the SNR<sub>T</sub> improvement and removing the bandwidth improvement completely. **JT65 is 33 dB better than SSB. You can communicate with a station with 1/2000 the power both ways!** In other words you would copy JT65 stations when SSB would be well below the noise, not even detectable! That says something about hearing both CW and SSB stations.

Here is a real life example of the benefit of JT65. On June 7, last month, there was an exceptional sporadic E opening to Europe from the West Coast on 6 meters. It lasted for almost three hours. There was a similar but shorter opening two years ago. Prior to that a Sporadic E opening deep into Europe was unheard of. During this opening everyone stayed on JT65. Many in Southern California worked new countries, ones never heard here on the West Coast. Some made as many as 8 contacts. There were 6 European countries worked ( DL, EA, EI, OE, OK, & GD) and 5 more reported hearing West Coast stations (F, GU, HA, I, & SV).

Using the reports from my JT65 program the following table was built. Other local stations reported stronger signals. The stations in blue could have possibly been copied if it was a CW contact. Most stations worked would be unreadable on CW. Note that since a CW transmission is much shorter than 47 seconds, the length of a JT65 transmission, there is a likelihood that the CW SNR could be higher than the average SNR reported on JT65. You might catch a CW transmission on a QSB upswing. This may slightly decrease the advantage of JT65.

June 7, 2017	JT65	CW	
Station Heard	SNR	(-11 dB)	(-14 dB)
DF3CB	-10 dB	1.0 dB	3.0 dB
DL5ME	-17 dB	-6.0 dB	-4.0 dB
DL8YHR	-13 dB	-2.0 dB	0.0 dB
EA1AUS	-23 dB	-12.0 dB	-10.0 dB
EI4DQ	-23 dB	-12.0 dB	-10.0 dB
OK1DIG	-14 dB	-3.0 dB	-1.0 dB

Another benefit that is not readily obvious is JT65 can be used as a reverse beacon, particularly on 6 meters. Watching a website like pskreporter.com may lead to catching a big opening early on. Even if the opening starts with JT65 it could quickly move to CW contacts and even SSB. Furthermore at a glance one can see the propagation conditions on any band and also the propagation history.

As far as propagation studies new paths are being discovered daily and statistics are being collected. Understand that less than a decade ago no one in the Pacific Northwest had worked Europe on 6 meters. Now it is a not so unusual occurrence on Sporadic E openings over the pole to Northern Europe. Southern California operators are waiting for openings to China and Mongolia as well as Morocco. These are not impossible paths. PSK reporting will greatly aid this effort.

Hopefully this discussion takes some of the mystery out of the benefits of JT65. Having worked on digital communication systems it is great to actually use one and understand how it works in real life situations.

Even if you think the new digital modes are an abomination to the DX community it is interesting to see what is being worked and how propagation moves over the day and season. It is a great mode and should not be ignored. Setting up a JT65 station is simple, particularly if you have an RTTY or PSK interface in place. WSJTx is the most common program and it is free from the WSJT website.

## TID BITS

### W6SJ Estate Sale

**FOR SALE FROM AN ESTATE - All reasonable offers will be considered.**

Call Arnie Shatz, N6HC at 714-573-2965 or email to [n6hc@aol.com](mailto:n6hc@aol.com)

Icom 756 Pro 2 transceiver	MFJ Memory Keyer 482-B
Icom PS 125 power supply	LDG AT-100 Pro antenna tuner
Icom CT-17 level converter	LDG RBA 1:1 balun
Icom IC 2KL solid state amplifier with power supply	Radioworks Line Isolator T-4
Icom AT-500 antenna tuner	NorCal 40A QRP transceiver
Icom IC 737 transceiver	Workman CX-3 coaxial antenna switch
Icom 706 MK2 G transceiver	Bencher Low Pass Filter YA-1
Astron RS-35A power supply (no meters)	Rig Runner 4008 interface
DX Doubler	Winkeyer USB
Elecraft K2	Pyramid SWR 14 meter
Elecraft KAT 100 antenna tuner	Palomar Preamplifier P-410X
Elecraft KAT 500 antenna tuner	Multimeter
Elecraft KPA 500 solid state amplifier	Fiberglass antenna poles (12)
MFJ Versatuner 941-E antenna tuner	

**FOR SALE (used):**

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### A DX Joke (N6GP)

The Thursday night before the DX Convention, an English ham (G), a Scottish ham (GM), an EI, a GW, an LY, a TA, a DL, a VU, a W4, an N1, an AA6, a KH6, a KL7, an LU, a PA, a VK, an OM, a SU, a JA, a CN, an F, a ZL, an EA, a UA0, a TG, an HK, an AP, a 9M6, a 9A, an EY, a 5B4, an SP, a YL (Latvian) , a BY, a 4S, an OD, a ZF, a 5U, a 3W, a HL, a CX, an OK, a TF, a XE, a OH, an HR, an HP, a C3, a 4X, a YV, an EP, a 3D2, an OA, an ES, a YK, a PY, a CT1, an HB0, a JT, an HA, a VE, an ER, an HH, a VK9N, a Z3, a CP, an E51, a UJ, a 5W, an EK , an P4, a ZE, an OX, a V6, a VP2V, a 4L, a C6A, a UA2, a CO, and a A35 all go into a fancy restaurant in Visalia.

"I'm sorry," says the maître d', after scrutinizing the group... "You can't come in here without a Thai (HS/E21)."

## TID BITS

### Ham Jam 2017

Saturday, July 8, 2017 is the date, store hours are 10AM-5:30PM, and once again we will be hosting our local clubs and communications specialists in the store parking lot for another educational and fun event.

Come see local communications vehicles, learn about Hospital Disaster Services, and see how many of the local clubs make various activities available to local hams. We look forward to hearing from any local group who would like to reserve space for this event.

The Eagle Scouts will be providing a hotdog lunch again this year, and Mr. Gordon West and many manufacturer representatives will be available for questions. Seminars will be scheduled on various subjects, including D-Star, C4FM System Fusion, and other hot topics.

License testing will also be available most of the day; if interested in testing, please call Janet at the store at 714-533-7373 with name and contact information so that we may plan for appropriate seating.

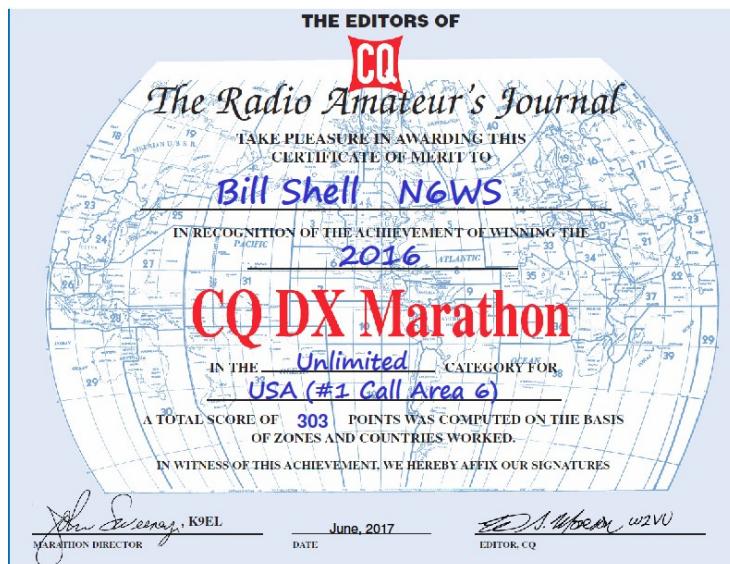
Two prize drawings will be held during the day at 12 noon and 3PM. Winners will need to be present to win goodies from many of our suppliers who have donated some really great stuff!

Come join us for a fun-filled Saturday of ham radio; make it your goal to leave having learned at least one new thing and/or shared your own knowledge with at least one new ham.

Kind 73,  
Janet Margelli, KL7MF

### Bill Shell, N6WS wins 2016 CQ DX Marathon Call Area 6

Bill thought he would slip by without being noticed however a little birdie clued us in that he took #1 in the annual CQ DX Marathon for 2017. This competition is year long and requires you work as many DX entities and CQ Zones as possible. Congratulations Bill!!!



The race is on for the 2017 DX Marathon. Will you join in the fun?

# HAMCON 2017

## ARRL Southwestern Division Convention

### September 15-17, 2017

Torrance Marriott Redondo Beach Hotel  
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- Extensive prize drawings
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- Young ham forum
- Sunday swap meet
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- With more to come . . .

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- Bus transportation to and from the Marriott Hotel included
- Limited to 80 guests, so register early

For complete convention details, registration and hotel bookings log onto:

**WWW.HAMCONINC.ORG**

# Resource Page

## Useful DX Sites

[N0HR DXpedition Map](http://www.n0hr.com/wk34/)  
[www.n0hr.com/wk34/](http://www.n0hr.com/wk34/)

The DX Zone

[www.dxzone.com/catalog/DX\\_Resources/](http://www.dxzone.com/catalog/DX_Resources/)

The Daily DX  
[www.dailyydx.com/](http://www.dailyydx.com/)

Announced DX Ops

[www.ng3k.com/misc/adxo.html](http://www.ng3k.com/misc/adxo.html)

DXKing.info  
[www.dxing.info/dxpeditions/](http://www.dxing.info/dxpeditions/)

DX 425 News  
[www.425dxn.org/dxped/](http://www.425dxn.org/dxped/)

Dx-info.de  
[www.dx-info.de](http://www.dx-info.de)

DX Italia DX News

## Propagation

### Flat Flat Flat

Well except for one point where the SFI peeked at 80 then ran away the index stayed in the 70s. It seems flat as a pancake. We had several days with zero sunspots and the bands really danced to that tune.

On the bright side JT65 is going strong! Six meters has had some great sporadic E openings to Europe and Asia. For several days double hop has been in to the Caribbean. Hopefully that will carry us through until Fall!

There are rumblings that we are heading to another 300 year period with no sunspots. Along with this the solar output drops and we go into a cold period where glaciers expand and wolves roam the earth. Doesn't this make you wonder about all this climate change garbage? Do scientists think that solar output and geothermal output are constants? The South Pacific, where all the El Ninos begin is literally a hot bed of volcanic activity. Maybe this is the real engine behind all the weather pattern changes. Well only time will tell so keep your carbon footprint small and your RF output high!

## ARRL VE Exam Sessions

To find an ARRL exam sessions in your area go to the website:

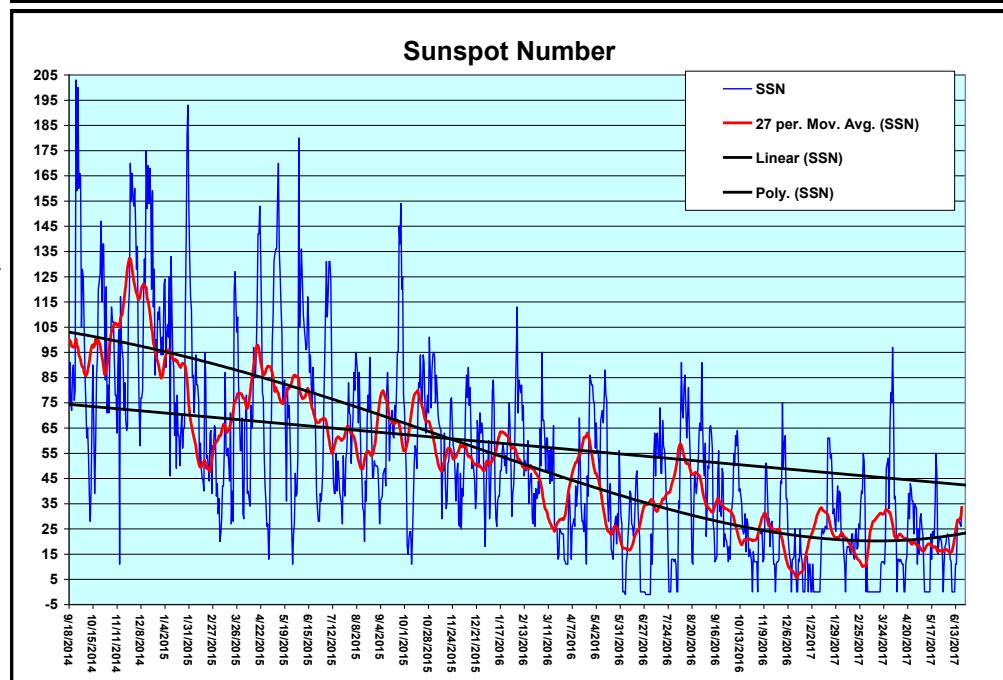
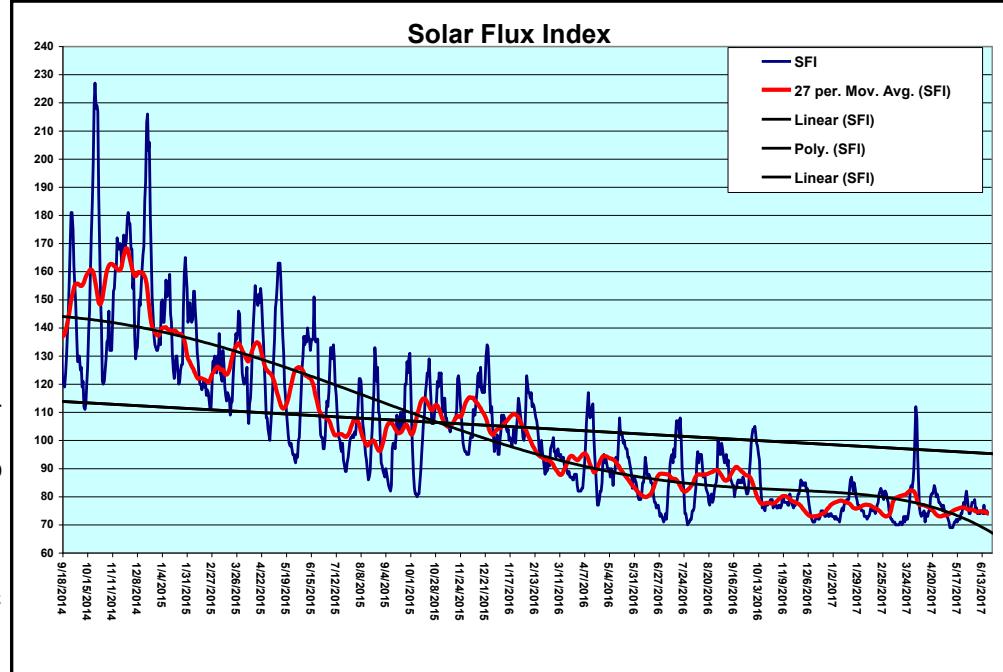
<http://www.arrl.org/find-an-amateur-radio-license-exam-session>

## Club and Conduct Sites

### Officer Guidelines

[http://www.scdxc.org/download/Officer\\_Guidelines.pdf](http://www.scdxc.org/download/Officer_Guidelines.pdf)

### DX Code of Conduct





Store	E-mail	Direct	Toll Free	Fax
Anaheim	<a href="mailto:ana@hamradio.com">ana@hamradio.com</a>	1-714-533-7373	1-800-854-6046	1-714-533-9485
Burbank	<a href="mailto:bnk@hamradio.com">bnk@hamradio.com</a>	1-818-842-1786	1-800-854-6046	1-818-842-5283
San Diego	<a href="mailto:sd@hamradio.com">sd@hamradio.com</a>	1-858-560-4900	1-800-854-6046	1-858-560-1705

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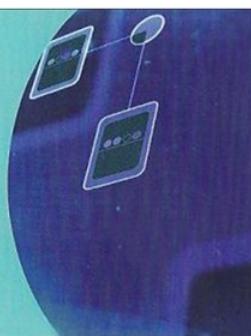
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